



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of: **TANIMOTO, Takeshi et al.**

Group Art Unit: **2852**

Serial No.: **10/050,173**

Examiner: **BRASE, Sandra L.**

Filed: **January 18, 2002**

P.T.O. Confirmation No.: **1344**

For: **IMAGE FORMING APPARATUS AND DEVELOPING DEVICE**

SUBMISSION OF APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, Va 22313-1450

June 10, 2003

Sir:

Submitted herewith are an original and two copies of an Appeal Brief in the above-identified U.S. patent application.

Also enclosed is a check in the amount of **\$320.00** to cover the cost of filing this Appeal Brief. In the event that any additional fees are due with respect to this paper, please charge Deposit Account No. 01-2340. This paper is filed in triplicate.

Respectfully submitted,

ARMSTRONG, WESTERMAN & HATTORI, LLP

John F. Carney
Attorney for Applicant
Reg. No. 20,276

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Enclosures: Duplicate of this paper; Appeal Brief and two copies; and check for **\$320.00**

H:\FLOATERS\JFC\02\020049\submission of appeal brief

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

APPEAL BRIEF FOR THE APPELLANTS



Ex parte TANIMOTO, et al.

Serial Number: 10/050,173

Filed: January 18, 2002

Appeal No. : _____

Group Art Unit: 2852

Examiner: BRASE, Sandra L.

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Date: June 10, 2003

Atty. Docket No. 020049



THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

13/Appeal
Brief
P. Walker
42703

Appeal No: _____

In re the Application of: **TANIMOTO, Takeshi et al.**

Group Art Unit: 2852

Serial No.: 10/050,173

Examiner: **BRASE, Sandra L.**

Filed: **January 18, 2002**

P.T.O. Confirmation No.: 1344

For: **IMAGE FORMING APPARATUS AND DEVELOPING DEVICE**

BRIEF ON APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: June 10, 2003

Sir:

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is FUJI XEROX CO. LTD., 17-22 Akasaka 2-chome, Minato-ku, Tokyo, 107-0052 Japan

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II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

This is an appeal from the final rejection of claims 1 to 7 given in the Office Action dated October 10, 2002, in the above-identified patent application. Of the claims on appeal, claims 1 and 7 are as presented in the Amendment Under 37 C.F.R. §1.111 dated July 29, 2002, and claims 2 to 6 are as originally filed.

Claims 1 to 7 are considered by Appellants to be on appeal.

IV. STATUS OF AMENDMENTS

By a Response Under 37 C.F.R. §1.116 dated January 24, 2003, the specification, as originally filed, was replaced by a Substitute Specification (copy attached). An Advisory Action dated February 4, 2003, indicates that the Substitute Specification was entered in the application for purposes of appeal.

The following brief is in support of the patentability of claims 1 to 7 which appear in the Appendix hereof.

V. SUMMARY OF THE INVENTION

The present invention is directed to an improved image forming apparatus or a developing device therefor having a developing unit 2 containing a developing roller 3 operative to produce a visual image on a photo-sensitive drum 1 for transfer to a transfer material, such as

sheet material, which is conducted in transfer relation to the drum. The developing unit 2 includes a cover 203 which encloses the developing roller 3 and that contains a body of particulate toner as developer wherein, when the developing roller 3 rotates within the cover 203, developer adheres to a latent image on the photosensitive member 1.

When the rotational direction of the developing roller 3 in the developing unit 2 rotates in a direction wherein the surface of the developing roller moves in a direction against gravity at the point at which the surface of the developing roller is closest to the surface of the photosensitive member, as a result of the direction of rotation of the developing roller 3 and the photosensitive drum 1 and, because of the need for a clearance opening in the cover 203 adjacent the drum, air is introduced into the developing unit through the clearance opening. Consequently, due to air pressure in the developing unit 2 and movement of the developing roller 3, developer in the form of finely divided toner is caused to be blown out of the developing unit through gaps in the apparatus which would include that defined by the aforementioned clearance member as well as lateral gaps located at the respective ends of the developing roller.

The present invention is directed to an improved image forming apparatus and developing unit capable of preventing developer material from scattering from the developing unit in the foregoing manner by preventing air pressure in the developing unit from increasing to a level as would tend to produce developer scattering. Specifically, according to the disclosed invention, in a developing unit 2 having a developer carrying member (developing roller 3) that rotates in a direction such that a contacting point with, or the point closest to, the surface of a photosensitive member 1, a clearance regulating member 4 is provided above the developing roller 3 and is free

from contact with the surface thereof. Moreover, the clearance between the developing roller 3, which is the carrying member, and the clearance regulating member 4 is set at a dimension not greater than the maximum height to which the developer projects from the surface of the developer carrying member.

As a result of the described arrangement, due to the provision of a restricted clearance space between the clearance regulating member 4 and the surface of the developing roller 3, the supply of air into the developing unit 2 can be effectively restricted thereby preventing an increase in air pressure within the developing unit and a concomitant reduction in the scattering of developer. Moreover, it is shown that the scattering of the developer is significantly decreased by setting the clearance regulating member at a height not greater than the height of the developer assumed at a location of a magnetic pole just downstream of the clearance regulating member 4 in terms of the direction of rotation of the developing roller 3.

VI. ISSUE

The principle issue presented for review is whether the Examiner erred in rejecting claims 1 to 7 under 35 U.S.C. §102(b) as being anticipated by Takeda, et al. (U.S. 5,327,339). In other words, does the device shown by Takeda, et al. contain every element of the claimed device?

VII. GROUPING OF THE CLAIMS

Claims 1 and 6 are each independent claims wherein claims 2 to 5 depend from claim 1 and claim 7 depends from claim 1. It is believed that claims 3 and 5 stand or fall with claims 1 and 6 but claims 2, 4 and 7, which particularly recite the relationship between the developer and a magnetic pole downstream of the clearance regulating member, are separately patentable from claims 1, 3, 5 and 6.

VIII. ARGUMENTS

A. Rejection by the Examiner

In the final Office Action dated October 10, 2002, the Examiner rejected claims 1 to 7 under 35 U.S.C. §102(b) as being anticipated by Takeda, et al. (U.S. 5,327,339). It is the Examiner's stated position that the Takeda, et al. reference discloses with particular reference to Figure 6 an image forming apparatus comprising: a photosensitive member (3) adapted to have an electrostatic latent image carried thereon; a developing unit including a developer carrying member (22) rotatable in a direction (b) against gravity at a point closest to the photosensitive member, and a cover for sealing a developer to be conveyed by the developer carrying member therein, where the developer carrying member carries and conveys the developer stored in the cover to develop the electrostatic latent image on the photosensitive member; and a clearance regulating member provided so as to be free from contact with a surface of the developer carrying

member, where the clearance regulating member regulates a clearance for an upper side of the developer carrying member. The Examiner finds that it is inherent that the clearance provided by the regulating member has a width not smaller than the developing width on the developer carrying member, wherein the clearance between the developer carrying member and the clearance regulating member is determined at a size not greater than a maximum height of the developer projected from the surface of the developer carrying member. The clearance regulating member has a leading edge provided to be free from contact with the developer. The developer carrying member is configured to have magnetic poles (23a, 23b, 23d, 23e). The clearance for the developer carrying member 3 provided by the clearance regulating member 4 is determined at a size not greater than a height of magnetic brush of the developer at a magnetic pole just downstream of a clearance regulated position in terms of rotation of the developer carrying member, and at a size not greater than a gap between the developer carrying member 3 and the photosensitive member 1. A position where the clearance is regulated by the clearance regulating member 4 is located between a magnetic developing pole (23b) and a magnetic pole (23d) located downstream of the magnetic developing pole in terms of rotation of the developer carrying member 3.

B. Argument by Appellant

It is respectfully submitted that the positions taken by the Examiner, first, that the clearance between the developer carrying member and the clearance regulating member is determined to be of a size not greater than a maximum height of the developer projected from the

surface of the developer carrying member, and, second, that “the clearance regulating member has a leading edge provided to be free from contact with the developer”, are not well taken.

According to the Federal Circuit, a claim will be anticipated and therefore invalid if every limitation is described in one prior art reference and the prior art is established such that one of ordinary skill in the art could practice the invention. Helifix Ltd. v. Blok-Lok, Ltd., 54 USPQ^{2d} 1299 (Fed. Cir. 2000). The test for anticipation enunciated by the Federal Circuit cannot be satisfied by application of the Takeda, et al. patent against the claims on appeal. This is apparent when it is considered that the clearance regulating member referred to in the Office Action is the member indicated by X in the attached duplication of Figure 6 of the Takeda, et al. patent. It is presumed that the leading edge of the clearance regulating member referred to by the Examiner is the portion indicated by Y in the enclosed sheet. It must be noted, however, that the clearance regulating member has a central portion which is in contact with the developer. Accordingly, it is clear from Figure 6 of the reference that there is no clearance with the developer at the central portion of the clearance regulating member identified as X in the attached drawing figure. The present invention, contrariwise, aims at regulating the clearance by the clearance regulating member, not the leading edge thereof. In Figure 6 of Takeda, et al., the clearance member X, having its central portion in contact with the developer, creates the problem referred to in the specification; namely, that when the clearance regulating member is so disposed as to be in contact with the developer on the surface of the developer-carrying member, as shown in Figure 4 of the application drawing a developer accumulation D is produced between the photosensitive member 1a and the developing roller 3 which operates as an obstacle to printing. (See page 7,

lines 18 to 26 of the original specification or page 9, lines 4 to 8 of the Substitute Specification of record.)

The foregoing argument pertains equally to each of claims 1 to 7 of which the independent claims 1 and 6 expressly contain the concerned claim limitations and claims 2 to 5 and 7 contain the limitations via dependency. Therefore it is submitted that the Examiner's rejection of the claims as anticipated under 35 U.S.C. §102(b) by Takeda, et al. is improper and should be reversed.

IX. CONCLUSION

The foregoing establishes that the Takeda, et al. reference relied upon by the Examiner in rejecting claims 1 to 7 fails to either teach or suggest an image forming apparatus as particularly defined in claims 1 to 7 in the application. The Board of Patent Appeals is accordingly respectfully requested to reverse the Examiner's rejection.

In the event this paper is not timely filed, Appellant hereby petitions for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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Enclosures: Appendix

APPENDIX

1. An image forming apparatus comprising:

a photosensitive member adapted to have an electrostatic latent image carried thereon;

a developing unit including a developer-carrying member rotatable in a direction against gravity at a contacting point with, or a point closest to, the photosensitive member, and a cover for sealing a developer to be conveyed by the developer carrying member therein, the developer-carrying member carrying and conveying the developer stored in the cover to develop the electrostatic latent image on the photosensitive member; and

a clearance regulating member provided so as to be free from contact with a surface of the developer carrying member, the clearance regulating member regulating a clearance for an upper side of the developer carrying member;

wherein the clearance between the developer carrying member and the clearance regulating member is determined at a size not greater than a maximum height of the developer projected from the surface of the developer carrying member and the clearance regulating member has a leading edge provided to be free from contact with the developer.

2. The image forming apparatus according to Claim 1, wherein when the developer carrying member is configured to have magnetic poles, the clearance for the developer carrying member provided by the clearance regulating member is determined at a size not greater than a height of a magnetic brush of the developer at a magnetic pole just downstream of a clearance regulated position in terms of rotation of the developer carrying member.

3. The image forming apparatus according to Claim 1, wherein the clearance for the developer carrying member provided by the clearance regulating member is determined at a size not greater than a gap between the developer carrying member and the photosensitive member.

4. The image forming apparatus according to Claim 1, wherein when the developer carrying member is configured to have magnetic poles, a position where the clearance is regulated by the clearance regulating member is located between a magnetic developing pole and a magnetic pole downstream of the magnetic developing pole in terms of rotation of the developer carrying member.

5. The image forming apparatus according to Claim 1, wherein the clearance for the upper side of the developer carrying member provided by the clearance regulating member has a width not smaller than a developing width on the developer carrying member.

6. A developing device comprising a developer carrying member rotatable in a direction against gravity at a contacting point with or a point closest to a photosensitive member adapted to have an electrostatic latent image carried thereon, and a cover for sealing a developer to be conveyed by the developer carrying member in the cover, the developer carrying member carrying and conveying the developer stored therein to develop the electrostatic latent image on the photosensitive member; and further comprising at least a clearance regulating member

provided so as to be free from contact with a surface of the developer carrying member, the clearance regulating member regulating a clearance for an upper side of the developer carrying member; wherein the clearance between the developer carrying member and the clearance regulating member is determined at a size not greater than a maximum height of the developer projected from the surface of the developer carrying member.

7. The developing device according to Claim 6, wherein when the developer carrying member is configured to have magnetic poles, the clearance for the developer carrying member provided by the clearance regulating member is determined at a size not greater than a height of a magnetic brush of the developer at a magnetic pole just downstream of a clearance regulated position in terms of rotation of the developer carrying member and the clearance regulating member has a leading edge provided to be free from contact with the developer.

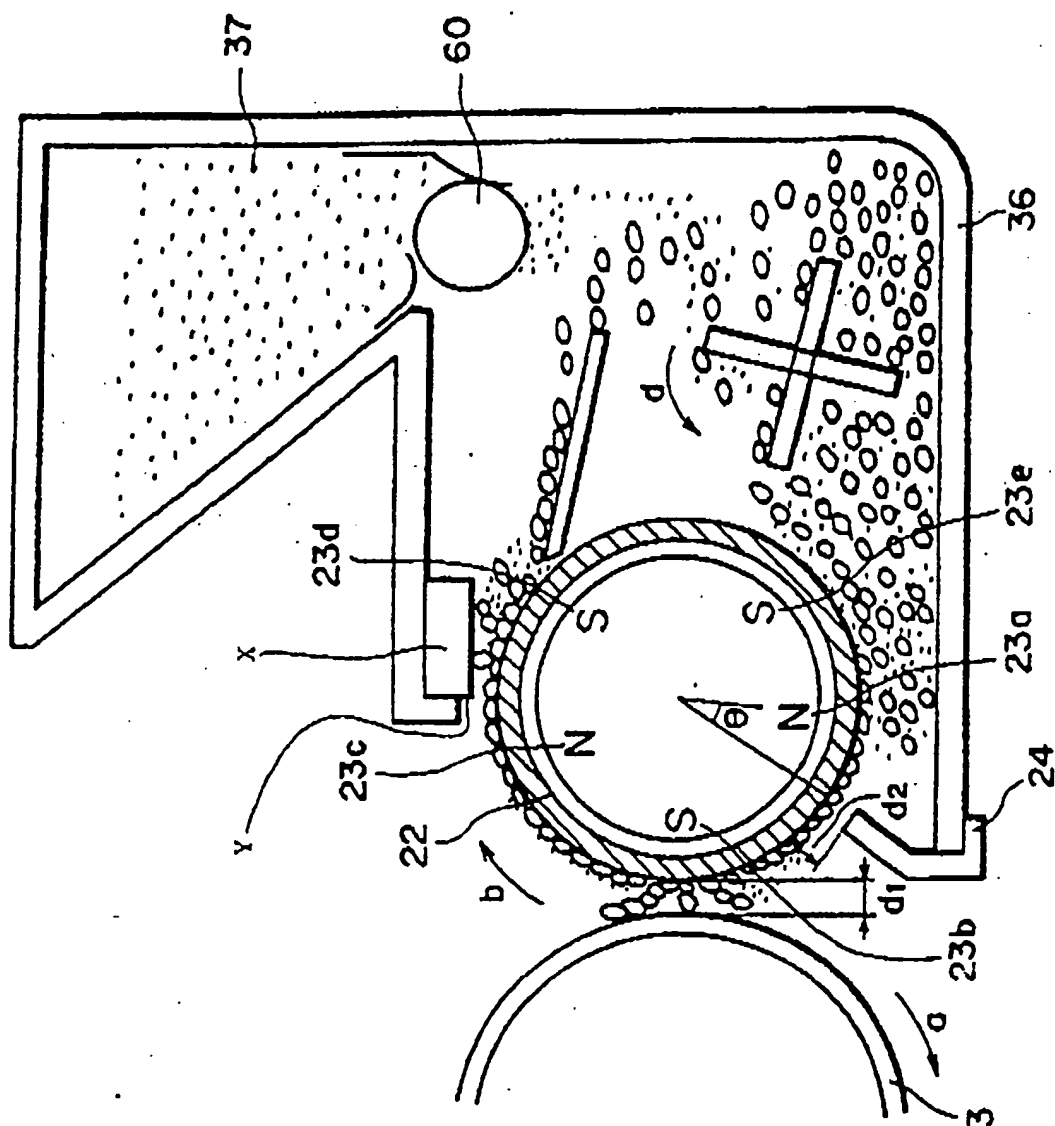


FIG. 6